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DECISION-MAKING: AN ILLUSTRATION OF THEORY BUILDING

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POPULATION AND WELFARE IN INDUSTRIAL SOCIETIES

KINGSLEY DAVIS, Ph.D.*

This is the Fourth Annual Dorothy Nyswander Lecture. It was delivered in Berkeley, April 6, 1960. The lectureship was established in honor of Dr. Nyswander upon her retirement as Professor of Health Education at the University of California.

In choosing a topic for the Dorothy B. Nyswander Lecture of 1960, I sought one that would explore the basic relationships between demography and public health, and the best way to do this seemed to be to discuss the population problems of the most advanced industrial societies. It is in such societies that medical science has brought the greatest improvements in death control, and where consequently the ultimate demographic implications are more clearly foreshadowed. Further, by turning our attention to the demographic problems peculiar to the industrial nations, we can avoid the unconscious assumption that it is only in the poorer and less developed countries that welfare is affected by population trends. The truth is that each type of society has its characteristic population structure—hence its own kind of problems and its own policy issues.

The industrial societies, as yet embracing less than a third of the world, are still so new, particularly the recent arrivals like Japan and the Soviet Union, that their demographic potentials have not fully evolved. It is clear, however, that among their most distinctive population traits are (1) their high proportion of aged persons, (2) their high degree of urbanization, and (3) their moderately low birth rates. Two other traits that once distinguished them—their long life-expectancy and their rapid population growth—are no longer theirs alone. The underdeveloped countries are rapidly coming abreast of the industrial nations in life-expectancy and have for some time surpassed them in population growth.

Whatever they are, the demographic features of industrial societies are mutually interconnected and dependent in their causation and in their consequences upon the defining trait of industrialism itself—high per capita output. This does not mean that the relationships are obvious at first glance, for indeed they are not. It means, rather, that none of the demographic traits is alterable without affecting other such traits or the bases of industrialism itself. By definition, the problem of an industrial society is not poverty. There is no question of populations lacking the

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means of subsistence. The problem, rather, is how to distribute rights and obligations in such a way as to guarantee the continued progress of industrial civilization. It is in terms of this problem that I wish to discuss the distinctive population trends of advanced countries.

The Structure and Causes of Aging Populations

The problem of an aged population is usually phrased as how to achieve the welfare of older persons despite their rising population. Another way of phrasing it is how to deal with older persons in such a way as to maximize the welfare of all members of society. With this in mind let us first look at the changing dimensions of the aged population.

Perhaps the best single index of the entire age distribution is the median age. In the United States the median age rose consistently with each census, from 1800 to 1950, but the most marked rise was from 1900 to 1950.

	WHITE POPULATION	
	Median Age*	Years Added in Prior Period
1800	16.0	
1850	19.1	3.1
1900	23.4	4.3
1950	30.8	7.4
1959	30.2	–0.6

* For 1800 through 1950, from Henry D. Sheldon, *The Older Population of the United States* (New York: John Wiley, 1958), p. 138; for 1959, from U.S. Census Bureau, Current Population Reports—Population Estimates (Series P-25, No. 212, Jan. 26, 1960), "Estimates of the Population of the United States, by Age, Color, and Sex, July 1, 1957 to 1959," p. 5.

The slight reduction in 1959 is insignificant compared to the enormous rise that preceded it.

The median age of course tells us nothing about the relation between specific age groups. Interesting from an economic point of view is the relation of those in the dependency-prone ages to those in the productive ages. If we take the dependency-prone to consist of those under 20 and those 60 or over, we find (as seen in the last column of Table 1) that there were, in the United States in 1900, about 104 of them for each hundred persons aged 20 through 59. By 1950, interestingly enough, the ratio had sunk to 85. This was an exceptionally favorable ratio, but note that the dependency-prone group was now much more heavily composed of older people. In 1900 the latter made up less than an eighth of the dependency-prone class, whereas in 1950 they constituted more than one-fourth of it. In fact, from 1900 to 1950 the child-adult ratio declined by a third, while the elderly ratio rose by three-fourths. Between 1950 and 1959, however, *both* dependency-prone groups rose in ratio to persons in productive ages. As a consequence, the total ratio of the dependency-

prone to those in the productive ages returned to where it was in 1900, substantially higher than it had been nine years before. Further, among those in the 60-plus category, the proportion in the upper ages, where dependency is more likely, showed a steady rise (Table 2). The age groups 60-65, in which most people are still vigorous declined from 37 to 32 per cent, whereas those 75 and over rose from 18 to 24 per cent.

Table 1

DEPENDENCY-PRONE AGE-GROUPS IN UNITED STATES POPULATION, 1900, 1950, 1959

	Ages 20-59 (000's)	Ages Under 20		Ages 60 and Over		Under 20 and 60+	
		Number (000's)	Per 100 Age 20-59	Number (000's)	Per 100 Age 20-59	Number (000's)	Per 100 Age 20-59
1900	37,340	33,771	90.4	4,884	13.1	38,655	103.5
1950	81,269	51,099	62.9	18,329	22.6	69,428	85.4
1959	86,708	67,883	78.3	22,512	26.0	90,395	104.2

Table 2

AGE DISTRIBUTION OF PERSONS AGED 60 OR OVER, UNITED STATES, 1900, 1950, 1959

	Total 60+	Aged 60-64	Aged 65-70	Aged 70-74	Aged 75-79	Aged 80+
1900	100.0	36.8	26.7	18.1	10.7	7.7
1950	100.0	33.1	27.3	18.6	11.7	9.3
1959	100.0	31.7	25.5	19.0	13.2	10.6

The position of the industrial countries in relation to the non-industrial ones can be seen from Table 3. The industrial countries have fewer proportions of children and youth, but greater proportions in the older ages. The contrast is particularly marked for the older industrial nations of northwestern Europe.

As the researches of Valoaras proved some years ago,[1] the overwhelming factor in the aging of populations in the industrial countries is the long secular decline in the birth rate. This is shown clearly by the United States data. In 1960 the proportion of children and youth was reduced because of the long decline in the birth rate during the first fifty years of this century. Those under 20 were the survivors from the relatively few births of the 1930's and 1940's, whereas those aged 20 to 59 were survivors from the more prolific decades of 1890 to 1930. The rebound of the birth

[1] Vasilios G. Valoaras, "Patterns of Aging of Human Populations" in Eastern States Health Education Conference Proceedings, *The Social and Biological Challenge of Our Aging Population* (New York: Columbia University Press, 1950, pp. 67-85: "Young and Aged Populations," *Annals of the American Academy of Political and Social Science*, Vol. 316 (March 1958), pp. 69-83. See also U. N. *Population Bulletin*, No. 1 (Dec. 1951), pp. 42-57, and U. N. *The Aging of Populations and Its Economic and Social Implications* (New York: United Nations, 1956), Ch. 2.

Table 3

DEPENDENCY INDICES OF THE AGE STRUCTURE IN SELECTED COUNTRIES

	Child-Dependency Ratio (Children under 15 per 100 adults 20-59)	Youth-Adult Ratio (Youths 15-19 per 100 adults 20-59)	Old-Age Dependency Ratio (Oldsters 60-plus per 100 adults 20-59)	Total Dependency Ratio (Under 20 and 60 and over adults 20-59)
Underdeveloped Countries				
Libya, 1954	87	20	22	129
Algeria (Moslems), 1954	101	24	12	137
Ceylon, 1956	90	19	12	121
Costa Rica, 1957	105	25	11	141
India, 1931	85	19	9	113
India, 1951	80	21	12	113
Industrial Countries				
Old World				
Belgium, 1956	41	11	31	83
Denmark, 1956	51	14	28	93
France, 1957	47	12	33	92
New World				
U.S.A., 1958	62	15	26	103
N. Zealand, 1956	65	15	26	106
Life-Table Populations				
U.S.A. White-Female, 1957, with life-expectancy of 73.5	39	13	43	95
Hypothetical future U.S.A. with life-expectancy of 83	38	13	60	111
Projected Population				
Great Britain 2017*	30	11	57	98

* Mortality decline between 1947 and 1977 at same rate as in prior 50 years, then stable. Fertility decline 20% between 1947 and 1967 and then remain fixed.

rate in the 1940's and particularly in the 1950's swelled the number of persons under 20, whereas by then the depression trough had moved up to the 20-59 group. In 1950 the elderly were numerous because they were the survivors of births in the prolific years of 1860-1890, and by 1959 they had grown proportionately more numerous because the 20-59 group had been drastically affected by past lower fertility.

Popularly, the cause of the aging population is still often thought to be declining mortality. It has been shown experimentally, however, by letting mortality decline while fertility is held constant and *vice versa*, that the rising proportion of elderly persons in the population of industrial countries is due almost entirely to the secular decline in fertility.[2] Since the reduction of mortality has been greater for younger than for older ages, it has tended to make the population more youthful in most cases. The postwar boom in births, a phenomenon common to all the industrial nations, lowered the median age of the population. It will eventually reduce the proportion of the aged, but not until birth cohorts of 1920 to 1940 have reached the elderly status, which will be after 1980.

Old-Age Policies in Aging Societies

Changes in the sheer age-structure of the population, impressive as they may be, do not automatically bring any particular consequence. The progressive aging just described constitutes a major factor in the further evolution of industrial societies, but its actual consequences depend upon medical and economic development as well as welfare policies. If, for example, the aging is accompanied by an extension of the average period of health and vigor, so that organic decline is postponed on the chronological scale, then an aging population will represent less cost to society than it seems to imply. Again, if the economic and social role of the elderly is re-defined and reorganized in such a way as to increase their productive performance, this will make an aging population less costly than it would otherwise be. Indeed, to see the flexible possibilities, one has simply to remember that an individual's chronological age affords no sure judgment as to either his organic condition or his social and economic capacity. A healthy man of sixty-five is likely to have more

[2] Valoaras, "Patterns of Aging," *loc. cit.*, showed that if the U.S. population of 1900 had been constantly subject to the same fertility as in 1900-1914 but experienced the declining mortality that it actually did experience, the result would be to make the population more youthful by 1940. If the 1900 population had been constantly subject to the same mortality as in 1900-1914, but experienced the declines in fertility that it actually did experience after 1900, the result would be to enhance the proportion of older persons. Using stable populations, the U.N. study, *Aging of Population and Its Economic and Social Implications*, found "that reductions of mortality such as have occurred in the past led to an increase in the proportion of young people from 0-14 years, a decrease in the proportion of adults from fifteen to fifty-nine years and a very slight increase in the number of persons of sixty years and over." (p. 28.)

capacity for work than a sick man of forty. An outstanding man of science, though he may not be at *his* best at 70, may still be better than the run of the mill younger men in his field. To adopt a position of hopeless demographic determinism in this matter of aging populations would therefore be scientifically erroneous.[3] But it would be equally erroneous to ignore the new demographic situation, for it requires great effort and ingenuity if its potentially uphappy consequences are to be evaded or mitigated.

Since an aged population is brought about by demographic factors—specifically up to now, by a low birth rate—one obvious solution is to eliminate the demographic cause. As a matter of fact, this is sometimes proposed in an oblique way, by condemning birth control because it creates the evil of an aging population. We shall later deal with the paradoxes of a demographic solution, but first let us analyze the social *mechanisms* either used or proposed for dealing with the swollen ranks of the elderly in industrial societies.

The Question of Labor-Force Participation

As with any other major social problem, so in the case of the aged there are several problems rolled into one. A given policy may be addressed to one of the sub-problems as if this were the sole consideration, or there may be ambiguity as to just what is being attempted. A conflict exists in modern industrial societies between providing a comfortable and dignified old age for increased numbers of people and keeping the rising load of taxes within bounds. Since there is no question but that the needs of the elderly must be met, even if more meagerly than some would desire, the further problem arises of how the financial responsibility is to be allocated.

The ideal solution—and one that gets immediately to the crux of the problem—is to reduce the main source of both economic drain and social hazard in an aging population: namely, the higher risk of disemployment as age advances. In the United States, according to 1959 data, the proportion of males aged 65 and over who are either unemployed or not in the labor force is 65 per cent. The figure rises rapidly with age:

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[3] For an exhaustive account of the changes in intellectual and artistic achievement with age, see Harvey C. Lehman, *Age and Achievement* (Princeton: Princeton University Press, 1953). For a brief summary of evidence that organic aging proceeds at some compound rate, see Hardin B. Jones, "Some Notes on Aging" in *Symposium on Information Theory in Biology* (New York: Pergamon Press, 1958), pp. 341-346; and his "Relation of Human Health to Age, Place, and Time" in James E. Birren (ed.), *Aging and the Individual* (Chicago: University of Chicago Press, 1960), Ch. 11. A thoughtful analysis of an aging population from a mental health point of view is contained in Torsten Sjögren and Tage Larsson, "The Changing Age-Structure in Sweden and Its Impact on Mental Illness," *Bulletin of the World Health Organization*, Vol. 21 (1959), pp. 569-582.

	Percentage of Males Not Employed, Not in School, Not in the Labor Force, 1959*
20-59	6.4
60-64	20.4
65-69	52.2
70+	72.8

* Based on estimated populations in Census Bureau, Current Population Reports, Series P-25, No. 212, p. 9, and on labor force data in *Ibid.*, Series P-57, No. 204, p. 12.

The number of disemployed at ages 60 and over is greater than the entire number either employed or in school in the age group 25-29. Obviously, if the disemployment ratio could be reduced, say, to 10 per cent for those 60-64, 15 per cent for those 65-69, and 25 per cent for those 70 or over, and if the increased employment in these ages was efficient, the net gain to national production would be substantial—probably substantial enough to meet the cost of keeping unemployed elderly population in decent circumstances. When we add that to continue in active work would save the morale of many an older person, the argument in favor of a policy of increased employment in the upper age brackets seems irrefutable.

Yet, if this is the most favored policy, it shows a singular lack of success. As is well known, the trend is the other way. As industrialization proceeds, fewer and fewer of the aged are working. A tabulation of male activity rates in three classes of countries about 1950 shows the following:

Type of Country	Per Cent Males Age 65 or Over Who Are Active*
Under-developed	78.5
Semi-developed	62.5
Developed	40.6

* United Nations, *Aging of Population and Its Economic and Social Implications*, p. 52.

Today in the United States, the proportion of aged persons in the labor force—34 per cent for males, 8 per cent for females—is the lowest on record, as Table 4 shows. A survey covering 1958 finds that 43 per cent of the men aged 65 or more and 14 per cent of the women had work experience *during some or all of the year;* but, even among those who did work, less than two-thirds of the men and less than half of the women had full-time jobs. Furthermore, among those who worked either full- or part-time, 26 per cent of the men and 29 per cent of the women worked only half the year or less.[4] It is also of interest that despite the great rise

[4] U.S. Census Bureau, *Current Population Reports—Labor Force*, Series P-50, No. 91 (June 30, 1959), p. 12.

in the labor-force participation of women during the last half century, the proportion of participation among those aged 60 and over has not risen at all.

Unless the causes of this long downward trend in employment are understood, there can be no intelligent policy with respect to the aged. For instance, one common interpretation is that the employers are to *blame*, since they often refuse to employ people in the upper age brackets. Although surveys indicate that preference is in fact given to younger workers,[5] this cannot automatically be laid to "prejudice," nor can it be easily demonstrated that "prejudice" has been on the increase. If careful investigation should prove that preference for younger workers is mainly a matter of irrational prejudice, then state laws barring discrimination against elderly workers on the basis of their age would be the answer. Such measures, however, assume falsely that there are no economically important differences associated with age. Yet we know that if an employer pays no attention whatever to age, but hires people solely on the basis of their proficiency in the work he wants them to do, he will wind up by taking some older person, to be sure, but not an equal share of them. To force him by law to take an equal share particularly at ages above 65, would be to lower the efficiency of his business.

Table 4

PROPORTION OF PERSONS AGE 65 OR MORE WHO WERE IN THE LABOR FORCE, UNITED STATES, 1890-1958

	Per Cent in Labor Force	
	Males	Females
1890	68.2	7.6
1900	63.2	8.3
1910	n.a.	n.a.
1920	55.6	7.3
1930	54.0	7.3
1940	42.2	6.0
1950	44.4	7.0
1959	34.0	8.0

Source: For 1890 to 1940, from John D. Durand, *The Labor Force in the United States* (New York: Social Science Research Council, 1948), p. 208. For 1950, from Henry D. Sheldon, *The Older Population of the United States*, p. 166. For 1959, derived from U.S. Census Bureau, Curent Population Reports —Population Estimates, Series P-25, No. 212 (Jan. 26, 1960), p. 9, and Current Population Reports—Labor Force, Series P-57, No. 204 (June 30, 1959), p. 12.

[5] In seven labor market areas in 1956 the Federal Bureau of Employment Security found that 20 per cent of the job orders filed with public employment offices specified workers under 35 years of age; 41 per cent called for workers under 45 years; and 52 per cent for recruits under 55. U.S. Bureau of Employment Security, BES No. E152 (1956), p. 28. Cited by Margaret S. Gordon, "The Older Worker and Hiring Practices," *Monthly Labor Review*, Vol. 82 (Nov. 1959), p. 1199.

Fortunately, the factors tending to lower the efficiency of elderly workers are not irremediable. Even the slowing down and worsening health that generally come with advanced years may in the future be postponed far beyond the usual age when they appear now. The obsolesence of skills that comes with age is known to be remediable, because re-education is possible in many cases. The employer, however, cannot base his hiring policies on the wonders of science in the future or on the maintenance of a costly re-education system. He can hardly be expected to bear the entire burden of reversing the downward trend of labor force participation among the elderly, especially at a time when the proportion of the elderly in the population has reached an all-time high. Before trying to force the employer to take the entire responsibility, one would be wise to explore other possible causes of disemployment than prejudice and other possible remedies than legal restraint.

To see what improved health could accomplish, we have to realize that a sizable fraction of the elderly are now disabled. Approximately 35 per cent of American men aged 65 or more are either in institutions or ill or disabled. Among those not in institutions and not working during 1958, 30 per cent gave "illness or disability" as their reason, and fewer than 2 per cent cited "inability to find work." The proportion with obsolete skills is harder to estimate, but expert opinion suggests that it is substantial and that re-education therefore has an important place in gerontological policy.

> During the last decade, and particularly in the last 3 or 4 years, the most rapid expansion of employment has been occurring in professional and technical occupations especially inaccessible to an individual who does not have the appropriate education and training and in which the proportion of persons aged 45 and over is relatively low. Meanwhile, the supply of younger workers is increasing, as the teenagers born in the high birth rate period of the early 1940's reach the labor market age.[6]

Important as organic disability and obsolescence may be, they do not explain, any more than prejudice does, the long association between a declining rate of labor-force participation by the elderly and an advancing trend of economic development. A more likely explanation can be glimpsed by recalling that work is not the whole of life, or production the whole of society. Although from many points of view it is desirable to keep the elderly engaged in productive activity, there are weighty reasons for excusing them from work too. Some people view the release from the necessity of working as a boon rather than a catastrophe: a just reward for a life of useful activity, something to look forward to and prepare for. Business firms and other employers do not view retirement schemes as just a means of protecting themselves from aged employees, but also as a part of the incentive, or "fringe benefit," system. It is not so much that the elderly wish to shirk, but rather that they want the option

[6] Gordon, *op. cit.*, p. 1198.

of working or not working according to their own individual circumstances.[7] Those who are not in the labor force today are in numerous instances better off than those of the same age in previous decades who *were* occupied. A high proportion of the latter worked in spite of serious handicaps because they *had* to. Today the productivity of industrial societies is such that they can afford to relieve the aged of the necessity of working, just as they can relieve children and adolescents.

It therefore seems hard to escape the conclusion that the shrinkage in the labor-force participation of the elderly is due fundamentally to economic development itself.[8] Earlier retirement, plus some increase in life-expectancy even at advanced ages, has given a long holiday to huge numbers of older people. Although there can be no doubt that for many this has been involuntary and disorganizing, there can equally be no doubt that for many it has been welcome.

The Allocation of Costs for Old-Age Support

If one of the potential gains of modern society is more opportunity for older persons to retire or work as they desire, then the question remains as to how the costs of those who elect to retire or who cannot work are to be met. In the oldest system, which still prevails more or less intact in much of the world, the aged continue to work if able and, if not able, receive support by kinsmen, usually their own children. This system has a certain symmetry; parents support their dependent offspring but put them to work as early as possible; and, in turn, the offspring (when mature) support their aged parents but keep them at work as long as possible. The immemorial tenacity of the system is explained by several factors. First, the prospect of being supported in old age encourages young adults to get married and reproduce. Second, the close and constant personal contact between those giving and those receiving support tends to minimize rigidity, neglect, fraud, etc. Third, in static primitive or agrarian societies, the old are more useful than in industrial societies, for they are valuable storehouses of culture and their skills, if retained, are

[7] How many do not wish to work is hard to say, because everyone is supposed to want to work and therefore gives some other reason for an inactive status than disinterest. In the University of California supplement to the Current Population Survey of April 1952, only 12.4 per cent of the 65+ men claimed they were able to work and yet not in the labor force. Of these, two-thirds were either not interested in working or wanted to work just occasionally. (Cited by Sheldon, *op. cit.*, p. 167).

[8] Sheldon, *op cit.*, pp. 53-60, examines several explanations of the downward trend in labor-force participation: changing occupational structure, declining self-employment, altered age structure among the aged. Rejecting these on empirical grounds, he leans to the view that the rising level of living with retirement schemes, etc., has been responsible.

not obsolescent.[9] Fourth, in such societies the birth rate is high and consequently the aged form a small portion of the population. In 1931, for example, India had 11.5 persons aged 20-59 for each one aged 60 or more, whereas the United States in 1958 had less than 4 to one and France in 1957 had only 3 to one.

It is only in industrial societies that the family-support system becomes superseded, and then only haltingly, partially, and with misgivings. Curiously, the system tends to persist so far as the support of children is concerned. Although public schools, family allowances, tax reductions, and other measures universally help in the support of children in developed countries, the main burden still rests on the parents. On the other hand, the aged are increasingly being supported in some other way than through reliance on their mature offspring. The reason for this difference is doubtless partly due to the fact that children are as a whole more attractive and enjoyable than old people; consequently, the industrial society can penalize parents by placing upon them most of the burden of child support and yet escape major difficulties of enforcement, whereas the reverse cannot be accomplished with respect to the aged. But there is a demographic factor as well. In an industrial society, due to the low birth rate, parents are more numerous in relation to young children than in an agrarian society. For identically the same reason, as we have seen, the aged are more numerous in relation to the younger adults. The effect of the demographic changes accompanying industrialization is therefore to reduce the burden per parent of supporting young children and to maximize the burden per young adult of supporting aged parents. This is demonstrated in three model populations, each representing a different combination of fertility and mortality. The ratio of elderly parents to adult children, as exhibited in Table 5, is twice as high in industrial

Table 5

RATIOS OF AGED PARENTS TO CHILDREN IN THREE MODEL POPULATIONS

	Population I: High Fertility High Mortality	Population II: High Fertility Low Mortality	Population III: Low Fertility Low Mortality
Parents Surviving to Age 60 for Each Surviving Child	.289	.301	.601
Average Number of Years a Parent Lives Beyond Age 60 for Each Year Lived by Child between Ages 30 and 60	.14	.18	.36

Source: United Nations, *Aging of Population and Its Economic and Social Implications* (1956), p. 75.

[9] See Kingsley Davis and Jerry W. Combs, Jr., "The Sociology of an Aging Population" in *Social and Biological Challenge of Our Aging Population*, pp. 147-159.

societies (column 3) as in transitional ones, and more than twice as high as in societies that have not started on the demographic transition (column 1). Although all of the models are made on the basis of certain formal assumptions, they illustrate clearly the *purely demographic* source of resistance to supporting the aged by having their children bear the burden.

The demographic elements do not, however, solely determine the support situation. For instance, the burden on the parents of young children is enormously increased in industrial societies by the ever longer postponement of the child's entry into the labor force. However necessary this may be for education adequate to run a complex economy, there can be no question about its direct and indirect costs to parents. It follows, then, that parents do not receive the full benefit provided by the low birth rate of industrial countries. This means in turn, that they are not in a good position to support *their* aged parents, especially since this burden has increased both from the aging population and from some factors leading to involuntary disemployment of the aged. As a consequence, the support of the aged, if left entirely in the hands of sons and daughters, would be not only onerous but unequal and inadequate; it would force the elderly into the labor market in maximum numbers and on bad terms. Instead, individuals have sought to make provisions for their old age in their own right, independently of their children. Since however, only a minority can accomplish this, the society at large has come to their rescue, and to the rescue of their adult children, by collective systems of old age security. In this way the erstwhile symmetry has been destroyed. Although many people still contribute to the support of aged parents, the trend is the other way. The parent-child bond, at least economically, is broken when the child becomes independent; the economic sacrifice of the parent for the young child is not rewarded by a return sacrifice by the adult child. The family structure is such that emphasis is placed on the married pair and their dependent offspring, with few ties remaining between them and their four elderly parents. Geographical and social mobility add to this break between the generations, a break between persons who were once close.

Collective systems of support for the aged tend to diffuse the cost to all of the producers. They are equitable—from each according to his capacity and to each according to his need; but they are also impersonal. There is "no personal link between the aged persons who receive retirement pensions and the workers who pay the contributions."[10] Consequently, the rule of *caveat emptor* applies to a greater extent. The aging generation tends to be bilked of its expectations by heartless inflation and in return it sometimes turns to political pressure to wring from

[10] United Nations, *Aging of Population and Its Economic and Social Implications* (1956), p. 78.

the active population all that it can. It has been stated that persons over 60 receive 20 per cent of the national income and compose 23 per cent of the electorate in France.[11] In the United States, although the average income of the elderly is below that of younger groups, the senior citizen lobbies have had considerable success in liberalizing state and federal legislation in their behalf.[12] There are more voters age 65 or over in the United States than there are Negro voters, farm voters or foreign-born voters. It would be a major tragedy if their situation became such that they would vote as a solid bloc.

The Future Age Distribution

Although the aging of industrial populations in the past has been due to declining and low fertility, an added influence may arise in the future. As was mentioned earlier, the past declines in mortality were greater at the younger than at the older ages. So great have been the reductions at ages under 35 that little room for improvement is left. If *nobody* died before reaching age 35, it would increase the number who do reach that age by only 6.4 per cent. At higher ages, however, there is great room for improvement.[13] It follows that if continued improvement in mortality is to be made, it will have to be in the advanced ages, and this will contribute to a further aging of the population. In Table 3 it can be seen that the projected population for Great Britain, made on the assumption that mortality would decline for 30 years as it did in the previous fifty and that fertility would be at a low level, yields an extremely high proportion of persons over 60.[14] Actually, the projected decline of mortality was conservative, for the highest expectation of life at birth that would be reached would be 69.0 for males and 76.2 for females. If a more drastic drop in mortality is assumed, a greater rise in the proportion of the aged takes place regardless of the level of fertility assumed.[15]

[11] Alfred Sauvy, "Social and Economic Consequences of the Aging of Western European Populations," *Population Studies,* Vol. 2 (June 1948), p. 117.

[12] See John J. Corson and John W. McConnell, *Economic Needs of Older People* (New York: Twentieth Century Fund, 1956), Ch. 5; and Frank A. Pinner, Paul Jacobs, and Philip Selznick, *Old Age and Political Behavior* (Berkeley: University of California Press, 1960).

[13] The life table for the United States shows that, under the mortality conditions of 1957, 94 per cent of those born reach age 35. If nobody died, this would amount to only 6.4% more survivors. Since, however, only 78% of those born survive to age 60 under 1957 conditions, an increase in the survivors say up to 92% would represent an 18% rise.

[14] Royal Commission on Population, *Papers,* Vol. II (London: His Majesty's Stationery Office, 1950), p. 281.

[15] United Nations, *Aging of Populations. . . . ,* pp. 28-30. The breaking point seems to be the life-expectation of 70 years, the point now approximated by most advanced countries. Beyond that point further declines in mortality tend to age the population at an accelerating rate.

There is no reason to believe that the pace of death control will not continue. The resources of scientific talent now being poured into medical research may soon bring a major breakthrough in precisely those diseases which, being degenerative, are associated with age—such as cancer and cardiovascular-renal disorders. Having saved people from infectious disease, we now let them die from the chronic maladies; but we shall be increasingly postponing these too. One can visualize a time when most people will die of accident, homicide, suicide, and warfare. Civilizations are mirrored in their causes of death. One of the most vital questions facing industrial civilization is whether the prolonging of life to ever more advanced ages will be an extension of senility or an extension of vigor.

Fertility, Prosperity, and Population Growth

I stated at the beginning that contemporary industrial societies exhibit moderate birth rates. Although these rates are approximately only half as high as those in nonindustrial countries, they nevertheless are sufficient, with low mortality, to yield substantial population growth (Table 6).

Table 6

POPULATION GROWTH, 1920 TO 1960 DEVELOPED AND UNDERDEVELOPED REGIONS

	Population (Millions)		Per Cent Gain
	1920	1960	
Underveloped	1,245	2,109	69
Developed	565	801	42
New/*a*	338	521	54
Old/*b*	227	280	23

a/ Australia-New Zealand, Canada, Japan, U.S.S.R., U.S.A.
b/ Northwest and Central Europe.

Between 1950 and 1960 the industrial regions as a whole added 14 per cent to their population—a rate sufficient, if continued, to double the number every 60 years.

The problem of rapid population growth in industrial countries is not scarcity of basic necessities.[16] Just the opposite. It is the glut of goods as well as people. The explosive combination of multiplying possessions and multiplying people is causing an ever larger portion of our high level of living to be used to escape from the consequences of congestion.

This circumstance is exacerbated by another feature of industrial societies—their urbanization. More than half of the American population now lives in urbanized areas of more than 50,000 inhabitants, including some giants such as the New York area with about 15 million. As a consequence, more than half are living at an average density in the neighbor-

[16] Cf. Arnold C. Harberger, "Variations on a Theme by Malthus" in Roy G. Francis (ed.), *The Population Ahead* (Minneapolis: University of Minnesota Press, 1958), pp. 108-124.

hood of 6000 per square mile, which is nearly four times the average density of the settled parts of Egypt. Yet, while an ever greater proportion of people in industrial countries are concentrating in urban areas of such size and density as to give the average Indian or Indonesian a sense of claustrophobia, their mode of life is making such density increasingly intolerable. In seven years, from 1950 to 1957, the number of motor vehicles in the United States rose by 37 per cent, while the population grew by less than 13 per cent. In the latter year, the average number of cars per square mile of land was 23. However, if half of them were stabled in urbanized areas of 50,000 or more inhabitants, the average density of this half was more than 2,500 cars per square mile.

As is well known, our urban masses are spreading from the more central to the peripheral portions of the urban areas in a frantic search for room in which to store and use their ever growing number of material possessions—automobiles, boats, trailers, television sets, freezers, king-size beds, saw-tables, archery equipment, golfing carts, and fishing tackle. Even their move to the suburbs requires extra equipment, such as a power mower, an extra car, longer utility lines, more super-highways. Not only residences, but stores, offices, factories are moving out in an effort to satisfy rising space demands. But this attempt to escape the city is hopeless, because the conditions that make the city intolerable—the multiplication of goods and people—are carried to the suburbs (in fact stimulated by the suburbs), so that the erstwhile fringe becomes a part of the spreading city. Furthermore, the costs and wastes increase as the urban area, the population, and the goods expand. An ever greater fraction of our energy promises to be dissipated in meeting the costs of commutation, air pollution, water pollution, traffic congestion, noise abatement.

One finds it difficult, therefore, to justify continued population growth in industrial countries. Indeed, those among these countries which seem to enjoy the best life, and which are consequently magnets of immigration, are precisely the ones that have the fewest people in relation to resources. Why, then, does the birth rate remain so high?

It remains high in part because of the opposition of some religious groups to efficient birth control. This has the effect of not only increasing the proportion of unplanned births among adherents of such faiths, but, since municipal, county, state and federal administrative and welfare agencies are often influenced by the religious opposition, the availability of efficient birth control to the ordinary citizen, regardless of his faith, is reduced. A recent field study of a national sample of urban white women found that 16 per cent of the most recent pregnancies were not wanted by the wife, husband, or both. The percentage rose sharply according to how many pregnancies had preceded the last one. If the last pregnancy was the first, only 6 per cent reported it as unwanted by one or both

married partners; if it was the ninth, the figure rose to 62 per cent.[17] The study also found that the percentage of Catholic couples using contraception is less than the percentage of Protestant couples doing so, but that the difference diminishes with wife's age:

	PERCENTAGE PRACTICING CONTRACEPTION*	
	Wife Aged 18-24	Wife Aged 30-34
Protestant	74	76
Catholic	51	63

* Ronald Freedman, Pascal K. Whelpton, Arthur A. Campbell, *Family Planning, Sterility and Population Growth* (New York: McGraw-Hill, 1959), p. 108.

The people who need help from welfare agencies and who, on the average, are poorer and less educated than the ordinary citizen are particularly likely to be deprived of access to help in birth control. In this connection it is of interest to note that the illegitimate birth rate has risen substantially in the United States. In 1940 the estimated illegitimacy rate was 7.1 per 1000 unmarried women aged 15-44 years; in 1957 it was three times as high (20.9).[18] It is also of interest to note that the nonwhite birth rate, always higher than the white, has tended to increase its advantage:

	BIRTH RATE*		Per Cent by Which Nonwhite Exceeds White
	White	Nonwhite	
1925-29	22.4	30.9	38
1953-57	24.0	34.9	45

* National Office of Vital Statistics, *Vital Statistics—Special Reports*, National Summaries, Vol. 50, No. 19 (November 27, 1959), p. lxxii. The rates are based on births corrected for underregistration.

But in addition to the inadequate use of birth control, another factor plays a part, and probably a larger part, in the continuance of a moderately high birth rate. Children are liked in industrial societies, and families of a congenial size are desired. Even if all pregnancies were planned, it seems likely that the birth rate would be high enough to yield substantial population growth. Indeed, as family planning has come to characterize a greater portion of all couples, the percentage of childless and one-child families has declined noticeably, just as has the percentage of families of six or more children. A greater portion of couples are now clustered in the two-, three-, and four-child range. With a low mortality in industrial societies, the average couple would need to have less than

[17] Ronald Freedman, Pascal K. Whelpton, Arthur A. Campbell, *Family Planning, Sterility and Population Growth* (New York: McGraw-Hill, 1959), p. 75.

[18] National Office of Vital Statistics, *Vital Statistics—Special Reports*, National Summaries, Vol. 50, No. 19 (Nov. 27, 1959), p. lxix.

2.2 children. In other words, some population growth would occur even if eight out of every ten couples had two children and the other two couples had only three. As the mortality is improved still further, the required number of births for replacement will approach ever closer to two per couple. This, along with the extension of life, means that a shorter and shorter portion of each person's existence would be spent with a young child in the household. It is questionable whether the tiny replacement-size family will ever be congenial to people.

Furthermore, a rate of reproduction low enough just to replace the population at the present low mortality would produce an extremely aged population. For example, in Table 3 are shown two life-table populations. Since a life-table population is one that has exactly the same fertility as mortality, it can be seen that in a population which has just enough births to replace itself and a mortality equalling that of United States white females in 1957, there would be more people aged 60 or above than children under 15. If mortality were improved only a bit further, to where a life-expectation of 83 was attained, the number aged 60 or over would be greater than the number under age 20. This prospect of a further aging of the population has become a key argument in the anti-birth control movement in France,[9] and may become so in this country. However, the implication that we should maintain a high birth rate as the means of solving the problem of an aging population overlooks the possibility that there are other, less heroic, means of doing so. It also overlooks the fact that family planning has other goals than simply the control of population, and that to ban it solely out of consideration for the age structure would be both short-sighted and ineffective.

The Demographic Dilemma of Industrial Societies

Looking back over the history of the advanced countries, we can see that their demographic changes during the process of industrialization—the decline of mortality, the reduction of fertility, the rising proportion of adults in the active ages, the growth of cities, the rise of internal and overseas migration—all contributed greatly to the efficiency and hence to the industrialization of these nations. But the later stages of the demographic transition have turned up certain unanticipated problems that require, for solution, the utmost care and strategy on the scientific side as well as in governmental and welfare policy. These problems are in large part the ultimate consequences of the decline in mortality that set off the demographic transition in the first place. This decline, which did so much to free the industrial peoples from the spectre of early death, caused the traditional level of the birth rate to yield families that were

[9] C. Watson, "Birth Control and Abortion in France Since 1939," *Population Studies*, Vol. 5 (March 1952), p. 263; A. Sauvy, *De Malthus a Mao Tsé-Toung* (Paris: Denoel, 1958), pp. 275-77; Population Reference Bureau," " 'Children in Spite of Ourselves': France Struggles with a Dilemma," *Population Bulletin*, Vol. 12 (Nov. 1956), pp. 109-136.

too large and populations too expanding. As a consequence, the birth rate during the latter part of the nineteenth and the first third of the present century was reduced with unprecedented speed—faster, in fact, than the death rate during the same period, with the result that the problem of extremely rapid population growth was diminished. But the lower fertility in turn brought an age structure which, though at first quite favorable from an economic point of view, eventually turned unfavorable as the bulge began moving from the young to the older adult ages. Yet the birth rate was still not low enough to cause population growth to cease, even though the latter has been complicated by urbanization. In the meantime, the recent and quick transfer of the latest scientific death control measures from industrial to the nonindustrial countries has caused their populations to grow at a rate never even approached in past human history, to a point fast enough to double their numbers every forty years, bringing a tremendous inflation in the growth of world population. The immigration pressure on the industrial countries has accordingly been, and will be, greatly heightened. The population of most of the industrial countries, including the United States, is growing from immigration as well as from natural increase.

The industrial nations thus face today a peculiar demographic dilemma. On the one hand, they can conceivably reduce their birth rate to the point where their populations are just replacing themselves. This would solve the problem of rapid population growth at home, and would serve as an example of self-control to those abroad who are in poorer circumstances. But it would involve such small families, would give most people such a minimum exposure to young children during a long life, that they seem unwilling to take this course. Furthermore, it would increase still more the proportion of elderly persons in the population and would expose the borders to almost irresistible immigration pressure. On the other hand, the advanced countries can keep their moderately high birth rates and their moderately high rates of population growth. This would exert some influence in keeping the age structure younger than it would otherwise be, and give some basis for restraining immigration. However, the probability is very high that such a policy if continued indefinitely, would be followed by almost incredible congestion. Also, the truth is that further declines in the death rate in the advanced countries will cause the proportion of the aged to rise regardless of the birth rate. Indeed, whatever the path taken, short of increased mortality, the industrial societies appear to be destined to have an aging population. This does not present them with an insuperable handicap, but it does place a profound burden upon them to find the means to mitigate the hardships and the inefficiencies that might otherwise result. To be successful, the means will have to be sought at all levels—biological, economic, governmental, familial; and will have to be compatible with the competitive viability of the industrial nation.

DECISION-MAKING: AN ILLUSTRATION OF THEORY BUILDING

BERYL J. ROBERTS, Ph.D.*

This is the presidential paper given at the Tenth Annual Meeting of the Society of Public Health Educators, Atlantic City, October 18, 1959.

At this ten-year point in the life of our professional Society, I consider it timely to focus on the base of our practice. I refer to the *body of knowledge*, the *body of theory*, from which our practice or professional activities evolve and receive direction, and which we enhance and expand as we chart, study, and analyze that practice.

First, let me say that theory is a word with wide meaning. I intend by it the general and abstract principles and the concepts and constructs upon which our practice is based. I include carefully reasoned postulates or hypotheses as well as verified hypotheses.

Our Professional Theory Must Be Delineated

The belief that we are a profession permits me to focus on the theoretical base of health education. I assume that a profession, while it may have skills necessary to its practice, differs from strictly skilled work in that it has scientific or well-reasoned knowledge of what its practice involves. I assume, further, that a professional person works in changing, complex situations which require thoughtful, planned analysis, and that he utilizes his theoretical base of knowledge in developing a sound approach which is appropriate to a specific situation at a specific point in time. He does not have an armamentarium of skills which he applies "willy-nilly," nor does his knowledge consist of simple directions he follows routinely.

We were told at our Fifth Annual Meeting that a craft moves toward becoming a professional when it begins "to study basic principles and not merely modes of practice," and reference was made also to "professional performance, based on general principles."[1] In discussing social work, Coyle refers to this same point in stating that the marks of a profession are the development of a tested body of knowledge, the setting of standards, the growth of professional consciousness, and the making of a significant social contribution.[2] Tyler stresses the conceptual base of professional practice when he refers to the "artistic application of major principles and concepts."[3] Hearn carries this emphasis further in stating that one function of a profession is "to extend knowledge," and also in saying that a profession acts "with integrity, knowledge, and skill,"

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knowledge referring here to action "with an awareness of the rationale and consequences of one's actions."[4]

We have moved forward somewhat in identifying a body of knowledge for public health education. At our Fifth Annual Meeting, we gave serious thought to "content codification," and our *Health Education Monographs* are a major contribution to this end.[5] Nevertheless, the really large part of content codification and theory building lies before us, for much that has been thought through and developed, unfortunately, remains fragmented in private files, in some few publications, and in the heads of many members of our profession. We have been neither consistent nor concerted in efforts to conceptualize the basis of our practice, to synthesize available knowledge, to document and study our experience, or to order the research carried on by our professional colleagues, and by basic scientists or those interested in our field.

The theoretical base of health education derives from more than one body of science. As professional health educators, we must understand something of health and disease, the health problems with which we have concern, and particularly the mechanisms that effect the prevention, control, or eradication of these problems. This understanding is essential to the identification of the behaviors or actions which people must take as individuals or communities desiring health—behaviors which we identify in conference with our professional colleagues, most of whom possess more scientific understanding and experience in this area than do we. It is the natural or physical and biological sciences which form our base in this area, although the social sciences are coming to aid more and more. Much is presently known about prevention, control and eradication of many health problems; the natural sciences have been well codified, are continually revised and made available with specific reference to public health. Large scale research is carried on and adds to the already deep and broad knowledge. I am not concentrating on that part of our knowledge base which is in the natural sciences.

In public health we have long accepted education as the major approach to the acceptance and application of control mechanisms by people, either as individuals or as communities. While we understand other approaches, we generally see behavior or action as evolving out of the education of people. The literature in public health over many years makes patent an interest in the educational approach, and there is recorded a gradual but steadily augmented use of education, concurrent with a strengthening comprehension of what this involves.

It is the *body of knowledge which provides the underpinning for this educational approach* that I am considering especially. It is the major part of our professional knowledge, and it is this which gives us our expertness. This knowledge is not so well codified as is that in the natural sciences.

Our Theory Has Many Sources

Many in our profession are of the opinion that there is not yet an identifiable body of theory which has been made relevant specifically to public health education; others feels that we already possess systematized knowledge delineated for our professional practice. Some feel that our knowledge base is available in related professions, that we are professionally within that broad field called education, that our theoretical base is in general education. Some identify adult education more pointedly as our source; some feel that it is social work. Still others think that our theory comes from the social sciences or from all of the fields mentioned, and more.

General education, indeed, offers sage advice about the educational process and methods, particularly as education has become more broadly community-oriented, and we can profit much from their considerable knowledge. Inevitably, however, the central focus of general education is necessarily the younger person and the classroom, though not in any narrow sense.

Adult education, stemming in large measure out of general education, is still reaching intensively for its knowledge base. Documented experience, theory, and research in this area is and will be of genuine value to us, but, like ours, it requires further development.

Social work gives us guidance, too, for they have assembled a substantial body of theory; and their experience in the process is quite illuminating. As has been the case with professions such as medicine and law, social work began before the sciences underlying its practice received any great development. Greenwood reports that "social work practice theory" was built by practitioners "in a trial-and-error, crudely empirical, and highly pragmatic manner," and Hearn is inclined to agree.[6] Stein states that social work early drew heavily on sociology, political science, and economics, and later, from 1920 or so, on dynamic psychology.[7] Kahn describes how social work knowledge today consists of propositions and methods borrowed from some basic and some applied related fields and "apparently original propositions" in casework, group work, and community organization.[8] Hearn mentions the ordered experience of social work, and we know that this, especially in community organization, offers real aid to our practice.[9] Nevertheless, here we see illustrated the fact that such ordered experience from one profession, though meaningful, must be re-focused and to some degree re-ordered to make for a good fit in another professional field such as public health education.

Administration is another field that is in the proces of establishing its theoretical body of knowledge. The work done in that field obviously will be of assistance to us; and we could refer to still other professions and fields in listing those which could contribute to us.

In comparison with public health education, each of the professions mentioned has for a longer period of time been identifying and codifying their knowledge. All lean heavily upon the social sciences, but they have considered basic theory in terms of its special meaning for their professions. Some have tested theory in their own fields, confirming or modifying it, and some have added to basic theory from carefully reviewed practice. All that comes from related professions offers us useful material; we must not ignore it. Nevertheless, even though these professions are close to ours because of the nature of their practice, it is understandable that none has explored theory from the standpoint and objectives that are unique to public health education.

Many believe that our theory, rather than being in these applied fields, lies in the basic sciences—the social sciences or more specifically the behavioral sciences. These sciences are valuable for their verified facts or hypotheses, and knowledge in them has increased immeasurably in the last twenty years. Unlike the natural sciences, there is more recent and less emphasized development in relation to public health; and knowledge in the social sciences, like that in related professions, has not yet been codified for public health education. Indeed, the social sciences are not systematized within themselves as yet; there is certainly no integrated science of human behavior although progress in this direction is evident as, for example, in the work of Parsons.[10] In spite of limited progress and knowledge in comparison with that manifest in the natural sciences, the social sciences even now offer a very imposing body of facts and useful theory; they continually increase knowledge with expanding research that becomes more and more soundly developed; and there are many capable social scientists who are interested in applied fields, public health included.

It should be mentioned here that all of us in public health aid advancement by acting as "gatekeepers" for behavioral scientists. Through us they come into direct contact with public health where their hypotheses can be tested and theory and facts rendered concrete, and where their research methods can be tried out in an applied field. In addition, we sometimes further advancement ourselves by testing in our own field pertinent social science theory and research methods that have been evolved in other settings. Even so, we are not yet adding any appreciable amount of knowledge from research carried out in the public health setting, or from well-documented public health education practice.

Those who identify the social sciences as the roots of health education have been prone to lean too heavily upon them. We have expected social scientists to do too much for us; indeed, it has often appeared that we expected *them* to identify the knowledge upon which *we* can base our practice. This is sidestepping a major professional responsibility. It is up to us to specify the knowledge we need in order to practice effectively

and to pull together what is available, to interpret its meaning for public health education and, subsequently, to modify and add to that knowledge from our practice.

In building professional theory, we must first identify what we need in our work, the organization of knowledge that will be peculiarly ours. This knowledge base underlying our practice is inherently complex because we deal with human behavior and the change process. Social psychology, sociology, social anthropology, political science, and other basic social sciences, as well as some professions already mentioned, offer theory related to our general function. Building our theory therefore requires an eclectic method—a lifting out of several fields whatever is applicable, unifying it, and "concretizing" it in principles for practice. At the same time, we can be identifying gaps which at this point are numerous. This body of theory would constitute a base to be modified and augmented from our practice. Thus, gradually, we would develop our own theory which would be dynamic and changing. It would comprise the knowledge that professional public health educators should possess.

In suggesting that the social sciences will constitute a source of some of our knowledge, I do not say that the public health educator is a behavioral or social scientist, in the usual meaning of this term, even though he needs depth of understanding of those areas of social science which are the roots of public health education. The concepts, models, and theory that bear upon our practice, as already stated, are not existent in any one science, and so health educators must relate and integrate material from several social sciences. They cannot be prepared in all of these sciences, for each is complex and concerned with human behavior broadly; no one realistically can be prepared academically in all of them. Paul enunciates this point in speaking of social scientists themselves, stating that there are not truly general social scientists as such.[11] Health educators, then, though basically prepared in a social science, would not finally be any one kind of social scientist, but something of several. The consistency, sequence and depth of their social science knowledge would lie in the unifying thread provided by the organization of theory around a particular professional function—education of the public about health.

Now a body of theory, when assembled, will not be found in any one volume nor will it be developed by any one individual, but various efforts and the several elements of theory will require articulation. In view of the many sources from which our knowledge base derives, the building of our theory will undoubtedly best be a collaborative effort, and the collaboration should be based upon mutual respect and understanding and professional interdependence. But health educators must take the leadership and be responsible; we must define our scope and function and

identify our unique professional position. Specialists from the social sciences and related professions will assist us in finding sources and selecting that which is appropriate and useful for our profession. The general approach must be thoughtfully organized and should not be a superficial investigation for new vocabulary or concepts to be "lifted" indiscriminately.

Having theory in the process of development and integration, but always open to revision, would move our profession steadily forward. It appears to me that nothing we could do as a profession would be of greater importance in achieving our objectives than identifying and organizing our theoretical points of reference. This would strengthen practice, heighten professional identification and acceptance, build individual and professional security, guide us into recognizing questions for which we must obtain answers, and be suggestive of needed basic and action research in which we might be co-partners. It would enable us to define the boundaries of our knowledge and to identify areas where we still have nothing to rely upon but common sense, estimated guessing, or intuition. Analytical exploration would help us to differentiate between fact and hypothesis.

Circularity Exists Between Theory and Practice

Some may feel that it is premature to identify the sources of our knowledge or to organize it; premature, first in the sense that we are not yet clear as to the public health educator's role, and second in the sense that no science or applied field has available the clear-cut facts we require. It is apparent that I agree with the second point, yet we practice every day and are hampered by the lack of theory organized for health education. We turn to many, many sources for material which is not co-ordinated into a meaningful whole, and implications for practice must be drawn largely by the individual. The facts upon which we base practice are often gathered hastily and indiscriminately; and we fill gaps in existing facts, or those with which we are familiar, with intuitive approaches. It is my major thesis that because we *are* now in practice and our theoretical base is not readily available in synthesized form, the responsibility to make it available is ours, and we must accept the assignment.

As to the first point—the health educator's role—we hope our Society's study of the practicing health educator will illuminate this question. Nevertheless, even now we have a sufficiently clear perception of the comprehensive purpose and *general function* of health educators to begin to draw together the theoretical underpinning for it. Morever, as theory underlying this general function—health education of the public—is compiled and principles which would dictate practice are derived, our understanding of the *specific* professional behaviors within the health educator's general function will be greatly clarified. Deeper study of the

community-centered educational process and theory therein will be suggestive of health educator's activities, for there is circularity between theory underlying a field and the types of activities performed by professional persons in that field.

Indeed, part of the difficulty we encounter in identifying and clarifying the health educator's specific activities may arise from inadequate study of the major questions characterizing our position, "Upon what principles do we practice, and how do we practice, in attempting to educate people toward optimal community health?" We are really asking, "What is our knowledge base and what does it tell us regarding professional practice?"

We are involved professionally in the educational process. We assist people to become educated about health matters so that community health will reach its highest potential. Action is our ultimate objective, (the development and maintenance of healthful action), and this often involves change. The words *educate, behavioral change, community, and health* to me appear to be our major reference points, to be our focal points, and to generalize our function. Even such a brief analysis of the health educator's general function is suggestive of the nature of our knowledge base. It is suggestive, to a degree, of our professional behaviors or activities; and as our theoretical base is more fully developed the principles of practice and the specific activities dictated by them will be indicated.

As health educators, we entered the public health picture after there had been some exploration of theory, however informal and unplanned, which gave rise to a program emphasis on education as a major means to behavior change. Perhaps the sequence in theory and practice went something like this. Public health, pointed toward optimal community health, requires the institution of measures to prevent, control or eradicate disease, prolong life, and promote physical, social, and emotional efficiency. Experience and theory suggested early and increasingly that the educational approach would effect the application and use of such measures; our values about human life and self determination supported this view. Education became an emphasis in public health, and experience and the evidence in the literature swung the method from publicity to a more personalized approach.

Health educators were now added to the practicing team to strengthen the educational component of public health. A general function was identified—education of the public about health—and through analysis of theory and experience in education as it applies to the community setting, health education leaders evolved a group of professional activities within the health educator's general role and function. Health educators began to practice, to carry out activities that would institute the educational method according to the best thinking current at that ime. Some

few studies, but not sufficient, were made to clarify the health educator's professional role. Meanwhile, practitioners, teachers and leaders in the field kept *au courant* with the expanding literature on community, education, and change; practice and professional education were somewhat modified.

A daily increasing body of relevant theory was developing in basic social sciences and related professions at the same time that the nature of public health problems was changing. Though studied by many in our field, though considered in publications to some extent, at no time has this been formally and adequately examined for the implications it would have for practice, nor has it been assembled with reference to public health education. Meantime, health educators have not been recording their experience in any consistent fashion, but a major contribution was made in the development of research by bringing social scientists and public health education together.

Now, I suggest, there is sufficient sound experience behind us, though inadequately documented, and enough theory and fact in the rapidly growing related literature that we must assemble that which pertains to community, education, and behavioral change in health and order this material according to the principles that will suggest the nature of practice in health education. I submit that this process will enable us to determine to a greater degree than a study of activities *per se* whether our present professional activities are adequate to aid education of the public in health.

Some Steps In Theory Building Are Described

Theory building, as Hearn describes it, is a large task in which we must engage ultimately if we are to develop an adequate base for public health education.[12] Nevertheless, we might begin in a small way, because our professional knowledge has been so little systematized that any planned effort would aid us. Though I suggest beginning simply, I do not intend a book of readings in health education, useful as this might be. Nor am I thinking of a handbook or a guide that says, "If you do these things, it will work." As educationists, we know that the latter is inappropriate and not a professional approach. I shall illustrate, in a limited way, what we as a profession realistically must do soon on a broader scale in building our theory. I do not feel competent, nor will time permit me, to discuss completely either the steps in theory building or the elements of our professional theory.

Our Professional Focus is Identified

First, to follow Hearn somewhat, we must identify our "focal domain" and the phenomena within it by studying deeply the questions posed earlier as characterizing our position.[13] We are involved in aiding the educational process, in changing behavior in health matters, in community

health and, therefore, with individuals, groups, and communities. As professional workers, we are agents of education who enter into a relationship directly with the public, or indirectly through others who have a direct relationship. Let this, in brief, describe our professional domain; and let education, behavioral change in health and community be the phenomena with which we deal. This is our starting point.

Our task in building the knowledge base for our profession will be somewhat simplified because we view the educational process as basically the same regardless of whether it is carried on with the individual, group or community. We have not subdivided it in professional education or in practice by type of health problem, by client focus (individual, group or community), or by environmental setting (industry, hospital or the like). While social work has prepared case, group, and community organization workers and is today seeking a generic theory, we have kept the educational process as our focus. This generic approach of ours is supported by Lippitt in viewing planned change.[14]

Unifying Concepts are Selected

Having identified our professional focus and the major reference points of education, change, community, and health, we could assemble around these the existing pertinent theory and research from the social sciences and related professional fields. It will assist us, however, to identify concepts or constructs which are truly unifying. Education and behavioral change are such unifying constructs. For illustrative purposes, I shall select *decision-making* as a sufficiently broad and meaningful construct to provide a framework within which to fit part of our theory. I do not see decision-making as a main centralizing construct such as Hearn considers ideally important in building theory, and I would use it together with other unifying concepts such as change, participation, power, action, community, and communication. Decision-making, however, could be viewed as all-encompassing, and much of the knowledge underlying health education could be subsumed under it.

Now, we could define the major and unifying concepts selected—here we are using decision-making—and pull together that theory and research which is pertinent, identify what is known and what requires additional research and theory, state those principles of practice which it is possible to evolve at this time, and finally describe the roles and specific activities of health educators within their general role and function. Other unifying concepts could be analyzed in the same way.

Decision-Making: An Illustration

Presently there is much material available on decision-making, for there is widespread interest in it. Economists see it as rational man making choices; political scientists view it as selection of strategy in local and international affairs and trade, and in voting; agriculturists

and social scientists in that field study it from the standpoint of practice adoption; those interested in administration, management, team and organization theory regard it as important in their fields. Some groups are more concerned with predictive aspects than are others; some have concentrated on the elements in decision-making and on its dynamic aspects. Some psychologically or sociologically oriented theories have evolved; game theory has developed in a fascinating way; some theories are stated in mathematical formulae. In some fields of inquiry, effort is expended toward simulating the human decision-making processes in computing machines.

A wealth of thinking and research is distributed discretely in the literature of many professional and basic sciences. Out of all this, what should health educators know, analyze, and apply selectively as they perceive decision-making as a component of, or all of, education? To get at this question, we must define decision-making as it applies to our profession in order to isolate that which has greater appropriateness.

(a) *Decision-Making is Defined*

I shall refer first to decision-making in the individual in order to build my definition more clearly. The frame of reference I would use in building theory for public health education, however, is *community decision-making*. This will be described later.

Decision-making occurs when an individual selects beliefs, attitudes, values, or actions from possible choices. Action or behavior, of course, is the goal in health education; decision is essential to this, for an individual, group, or community must decide to adopt or not to adopt a new behavior. Decision-making presumably happens in the course of education when different possibilities come before a person, as which food to eat, and a selection is made which gives dominance to one choice.

We recognize that decisions are not always rational in the scientific sense, and that change may result without conscious choice. We realize that decisions are affected by much within the individual—the cognitive, affective and conative elements—and by the situation in the sense of the total psychological field including, among other forces, significant persons, the message, the channel of communication, and the agent of education. Any decisional moment itself is embedded in a complex process and is difficult to isolate, for there are pre-decisional forces and events, the decision itself, and post-decisional forces and events. For us in health work, the post-decisional forces are important, for we have concern not only with the decision but also with the maintenance of action resulting from the decision. Is the decision in the direction of desired behavior, and is it sustained?

Education can be viewed, in a sense, as a series of decisions. For instance, in seeking medical care for suggestive signs and symptoms, an

individual decides along the way whether he will consciously recognize the abnormality, what he will permit himself to consider it as being, whether he will watch it vigilantly or render home treatment or go for medical care, whether he will discuss it with family or others, and so on. While our major concern is with the decision that dictates the critical action which constitutes prevention, control, or eradication of a health problem, as seeking early diagnosis, we appreciate the importance of and we study intermediate decisions because of their relationship to the decision which is focal in the educational effort. We see decision-making in a continuum of change, then, and it is difficult and perhaps impossible to isolate not only the decisional moment, as already stated, but also a given decision because a series of decisions and a larger behavioral change process is involved.

As we move from individual to group to community decision-making, this definition applies essentially. Similar elements are present in all types, viz.: various actions (or cognitions, attitudes, or values) are possible, a choice is made and given dominance, the single decision may be just one in a continuum of decisions, and maintenance of the decision is frequently essential to health.

(b) *Patterns of Community Decision-Making are Described*

Since the community is our unit in public health, we shall take this as our vantage point. Experience suggests that *community decision-making* in health might fall typically into four main patterns. Common to all is the topic—a *public or community health problem requiring* some kind of *community decision and action* for its solution. Though the problem may not affect all people of the community, it is of concern to the community officially or generally. For example, the problem may be air pollution or an impure water supply—a widespread problem, one affecting all people; or it may be a high infant mortality rate in a particular section of the community—a problem affecting only a part of the people directly but of concern officially because it affects all the people indirectly. Though narrowed to health, the characteristic of a community issue is in agreement with Rossi's concept of community decision-making, although Rossi sees more of formal "issue" involved.[15]

First in our patterns of community decision-making are decisions which affect the community as an entity and which are made for that community by a smaller group within it, an official or unofficial group, a formally constituted group or not. A city council voting to fluoridate the public water supply exemplifies this pattern, as does an unofficial group of leaders deciding to bring a given health service or facility, such as a purified water supply or a new clinic, into the community.

Next, in the *second* pattern, are decisions which affect the total community and are not made completely by a group acting for the community but by the people themselves of that community after action

is initiated by the smaller group. The smaller group may make an initial decision, but the issue is then put to the people who may make their decisions individually (if there is such a thing as an individual decision), and at different times; however, they vote and thus make their decisions official as a body at one time. The public referendum on fluoridation is a current illustration.

In the *third* pattern, decisions which affect the total community are also made by the people of that community over a span of time, as in the second pattern, but the "individual" decisions are not rendered official simultaneously. This is a frequent pattern in public health as, for example, when the necessary facilities are available and we educate people toward improved nutrition, immunization, or early diagnosis. People decide what they will do at different times, at their own pace, and they act at different times.

Health programs often combine the patterns described. For example, a small central official or unofficial body may decide about a service or program which is not yet available, and individuals or groups then make their own decisions about the use of the service, as in an X-ray or immunization program. This is the *fourth* pattern.

(c) *Community is Considered the Focal Point*

Community decision-making could be analyzed from a limited standpoint, as in the first pattern where a decision clearly affects the total community. This would permit clear delineation in study and analysis. But most current health problems in our country require that individuals themselves take action; many problems cannot be solved by environmental controls instituted by a small group acting for the community. All four patterns, therefore, require consideration.

Since the community is our entity or unit, our study of decision-making requires that we constantly keep the community as our focus, a macrocosmic view. Consequently, we would direct our efforts toward understanding decisions made by communities as a whole when they are adopting health programs or behaviors. Nevertheless, our patterns would lead us necessarily to study *group* decisions as part of *community* decision-making; then our analysis ultimately would funnel down to *individual* decision-making, a microcosmic view. Though we adopt the microcosmic view and center upon group and individual decisions *per se*, we would study them in the broader situation (community) to which they belong. Although individual or group decisions may not be community oriented in the eyes of those who make them, they *are* community oriented in the *issues* of interest to us because of the community health context within which they are made, and since we view them as part of a total community decision-making process. A clear comprehension of community decision-making as it pertains to public health education thus requires analysis

from both the macrocosmic and microcosmic standpoints. *Community, group,* and *individual* decision-making are complementary, interrelated processes.

Some would not agree with these patterns of community decision-making, but we seek to explore a question that derives from our particular practice. It is not necessary that others regard decision-making from exactly the same standpoint. It is not surprising, then, that the knowledge about *community decision-making* according to these patterns, and with *public health as the issue involved,* has not been brought together.

(d) *Understanding of Theory and Major Concepts are Seen as Basic*

Having identified the professional focal domain, the phenomena within it, and having selected a unifying construct—decision-making—we would organize around this the relevant theory and research. It would be essential first to identify a general conceptual framework; then we could synthesize that theory which is meaningful. Thus we would organize a background and interpretive base to aid in studying published research and in deriving the principles applicable to our practice.

Snyder, in part, selects Parson's theory of action as his conceptual framework.[16] Lewin's theory of change is also applicable to decision-making as is Festinger's theory of cognitive dissonance.[17] Let us assume that we shall use Lewin's and Festinger's theories as our general framework. Other theories of change and human behavior are useful, of course, as are specific theoretical concepts. Bourne, for example, has organized some decision-making research around the reference group concept.[18]

We assume that health educators who will provide leadership in building professional theory will be familiar with knowledge in related professions and with the major behavioral and change theories. They will be cognizant of meaningful concepts and constructs such as reference group, role, level of aspiration, communication, motivation, power, participation, leadership, socialization, interaction, culture, social class, community, community organization and the like. They will be familiar with sources of theory and research and have the general conceptual base essential to the task of synthesizing theory for a profession. Those from related professions and from the social sciences who will collaborate in building our knowledge base will offer their more specialized and deeper understanding of basic theory and specific concepts in their fields.

(e) *An Approach to a Study of Decision-Making is Outlined*

What approach will be useful if we accept the definition and the patterns of decision-making presented here? What approach will enable us to order theory and research which bears upon decision-making and derive meaning for public health education?

Wasserman and Silander, in compiling an extensive bibliography on decision-making, indicate certain approaches by virtue of the categories

they establish for classifying references.[19] Lionberger classifies research on the adoption of farm practices under four headings, viz., practices adopted and reasons for adopting, effectiveness of communication media, the diffusion process, and socio-cultural or socio-psychological factors.[20]

Rossi, in a systematic analysis of research on decision-making, isolated three approaches.[21] One centers around the characteristics of decision-makers. A second studies the partisans of issues. The other is concerned with decisions themselves, viewing the complex process involved but seeing this especially in terms of decision-makers' social relationships. Rossi states that studies of decision-making must be "extensive" and "comparative" and focused on decision-makers, on communities and institutional settings, and on issues as the bases for comparisons.[22] Polsby, writing on community power, pleads for increased study of decision topics, assuming that decision-makers change with issues.[23]

Snyder states that there is no "really fruitful concept of decision-making" and no good conceptual scheme for analyzing decision-making, although much is published on the "substance" of decisions and on the "formal structure within which decision-making takes place."[24] He outlines an approach which centers on decision-makers' behavior and suggests analysis of their perceptions, choices and expectations, and a study of decision-makers as "participants in a system of action" which, for the political scientist, is a governmental organization.[25]

It is desirable to set up our own approach around our particular definition of community decisions so as to integrate the thinking that has meaning for our general professional function. This design or approach may not be original, but the organization of ideas around public health education practice will be original.

Whatever our approach, it must permit deep study of decision-making, because health decisions are not made superficially. They are crucial, for they are associated with life purposes and goals. This could be said of all decisions a person makes if we believe that all behavior is purposive. Nevertheless, behavior deriving from health decisions, as whether to go for preventive care or for hospitalization, is more directly critical to the present and future and life itself than are decisions about some farm practices, for example, or some purchases, and so on. Health decisions bring into play well rooted belief-attitude systems, established behavior patterns, and deep-lying motivational forces. No superficial or mechanical study, consequently, will have significance for health education. We cannot approach decision-making as input-output; we must view the total individual in the total situation. Health decisions must be studied, therefore, from several dimensions.

Possible factors for study include the *content* of decisions, the *decision-makers, the nature of the decision process,* the *environmental forces* influencing decisions, the *role of the change-agent,* and the *sustaining or*

maintenance of a decision in continued action. Each factor or dimension must be explored in relation to the structure created by our definition of community decision-making, i.e., individual, group, and community. This organization of the dimensions of decision-making into categories orders our approach. What might the study of each factor include?

Content of Decisions

Since the significance of a given health issue varies from culture to culture, time to time, and situation to situation, will the nature of the specific issue be of special importance in health decision-making? Does the method employed to aid decision-making, the process of individual or group decision-making, the composition of decision-making groups, and the course by which decisions spread in a community differ with specific issues? Are findings about decision-making in fields other than health, or in special health problem areas, widely applicable?

The Decision-Maker

Using the microcosmic approach, how does what the decision-maker himself brings to the situation affect decisions—his needs, goals, values, cognitions, attitudes, past experiences, and future directions? For decisions involving more than one person, is there any constant combination of persons who comprise the basic decision-making unit—the nuclear or extended family, informal groups generally, or others? For instance, does the same basic unit making decisions about hospital care also make decisions about food practices? What are the power and role relationships within decision-making groups and units?

At the community or macrocosmic level, are there persons who function in many or all health issues as a basic community health-decision-making group? Or do decision-makers become decision-makers according to issues? Are there any general qualities characterizing community decision-makers, or do they vary with types of communities? What do they bring to decision-making in role, status, position and motivation? Is role more important, as Rossi suggests, than social and personal qualities?[21] Are health workers part of stable community decision-making groups? Who is believed to have decision-making power but actually does not have it? What relationship exists between decision-makers and those whose action the decisions affect?

In short, who is the decision-maker? What does he as a person bring to the situation? What relationships are maintained by those who comprise the central decision-making units of the community? In group decisions and seemingly individual decisions, what are the relationships among the decision-makers?

Nature of the Decision Process

What is the nature of the decision process? What are the dynamics, the process, the sequence of steps, or the stages in individual or group decision-making? Then how do decisions spread, flow, or diffuse in the community? Are there identifiable steps through which individuals, groups, and communities progress toward decisions? Are there patterns of flow or diffusion of decisions within a community? How does the structure of the community, institution or group affect the process?

Environmental Forces

From a dynamic standpoint, no sharp line can be drawn between decision-maker and situation, but it is useful to give separate consideration to environment or situation in order to give it sufficient emphasis. What effect does the total milieu of culture and community have on decision-makers and process? What are the effects of social networks and relationships, of different communication media and channels, of communication methods and appeals, of the general structure of the situation or community itself? Who may influence the decision-maker importantly yet not be involved directly in the decision-making?

Role of Change Agent

Health workers frequently aid individuals, groups and communities in decision-

making. Admittedly, the change-agent is part of the environment, but we single him out because this role has particular meaning for the health educator. How does the behavior of the change-agent affect decision-making, and what roles can he assume to best aid decision-making? What relationship has a health educator to different community decision-making groups?

Sustaining or Maintaining a Decision

Health decisions are not effective generally unless sustained action results. How does the act of decision-making affect continuation of action? Do any particular aspects of decision-making require special attention if maintaining the decision is an important part of the objective?

In an approach similar to the one I have outlined, we could uncover research and theory that would illuminate decision-making as a part of the body of knowledge needed by a public health educator. A systematic exploration of the literature would lead us into many fields of basic and applied knowledge. Admittedly, our study would be complicated by the fact that much research does not fall clearly into any single category established by our approach.

(f) *Research is Examined*

We can develop merely the briefest illustration here to explain what a search of the literature involves. There are several bodies of research which have an internal consistency, a kind of continuity that bridges the gap from study to study. I shall select two familiar ones that have special meaning for our profession—*group-decision* studies, and research on the *community diffusion* of decisions. The former has to do especially with the small group *decision process* and with the *maintenance of a decision;* the latter treats principally of the *community decision process* itself. Both unavoidably cut into other categories and could be examined from the standpoint of all categories established by the approach outlined. Such an extensive analysis is not permitted here, and so I shall look at these studies only from the major category in which they seem to fall.

What do these studies reveal about decision-making as defined here? What principles are indicated for practice? What gaps exist in the knowledge available, and what additional research is needed?

(g) *Group-Decision Studies are Analyzed*

First let us take up the familiar group-decision studies. Have we examined this research deeply enough to extract the true meaning for health education practice? Or do we grasp such research too hurriedly, taking only the superficial meaning and spelling out principles hastily?

The early studies of Lewin and his associates make manifest the effectiveness of small group discussion combined with individual decision in a face-to-face group in influencing the immediate and later action of those involved.[26] A decision is momentary; but in Lewin's studies, those who made a decision (about action) in a group where all individuals made and stated similar decisions by a showing of hands carried out

the action in a greater proportion than did those who heard a lecture, with no decision, or received individual instruction. This general finding applied in several studies.

Results similar to Lewin's have been observed in industry, cancer control, and other fields. Levine and Butler, for example, in research with industrial supervisors, support Lewin's findings, as does Bond in her carefully designed study of the practice of breast self-examination.[27] Bond raises a nice question about possible differential effects of discussion and decision, which are combined in the studies mentioned, and indicates the need for studying these separately.[28]

Lewin reports that leader personality and specific foods—variables which research design took into account—seem not to be responsible for the observed differences, nor is a closely knit or permanent group necessary.[29] Research procedures, however, did not permit a comparison of those who made a decision with those who did not; the groups were unanimously deciders-to-act. Also, discussion and decision were inextricably woven together and not studied separately. In addition, results may have been associated with the public nature of the commitment or the mention of follow-up. None of these points did we as health educators recognize openly when we so quickly grasped Lewin's general findings and assumed discussion-group-decision to be a method of choice in public health education.

Some of Lewin's research was conducted on food practices, several foods being involved. From the standpoint of our approach to a study of decision-making through analysis of the intrinsic *content* of decisions, it is of interest that acceptance rates were not the same for all foods. The percentage of change in feeding orange juice to the baby was greater than that for evaporated milk for the family, for cod liver oil for the baby, for fresh milk and, finally, for glandular meats. The amount of change after discussion-decision decreased in that order. After lectures, the rate of change, though of less magnitude, followed the same rank order. Is the issue or content of the decision, then, an important variable? Lewin calls attention to this possibili[30]

Field theory provides a useful basis for examination of these studies. In line with his field theory, Lewin regards a group as a "social field," and an event such as decision-making is seen as the result of the distribution of forces in the field. Lewin suggests that change includes "unfreezing" the old level of performance or conduct, moving to a new level, and "freezing" the change at this level.[31] Change is thus viewed as movement, through the interplay of restraining and driving forces, from one level which was in quasi-stationary equilibrium to a new level. Lewin discusses his studies in the light of this theory and particularly considers the face-to-face group and the group decision which, in his studies, was combined with discussion.

Discussion leads to a higher degree of involvement, Lewin feels. It generates active participation and offers opportunity to express motivations corresponding to different choices. Discussion may therefore make a group more ready for decision than does a lecture, but group discussion does not always lead to decision.

Lewin sees the act of decision as a transition from a state of indecisiveness to a state of definiteness where one choice gains dominance. Forces favoring one choice dominate; forces favoring other choices become zero or are diminished. Decision links motivation to action, and this linking is not usually provided by lecture or even discussion. Decision freezes a "motivational constellation for action."[32]

Lewin treats discussion and decision in relation to the face-to-face group situation and uses the term "group decision" to refer to *individual* decisions *made and stated in a group unanimously*. Lewin does not intend by this term a group decision about a group goal but, rather, "individual goals in a group setting."[33] Such decisions, unanimous in Lewin's studies, are "group carried"; they change a group standard, and the new standard acquires value because individuals desire to retain membership in groups important to them. Since group decisions are self-arranged and are unanimous, counterforces are reduced within the individuals themselves. This aids follow-through to and permanency of action because it creates less tension than when outside forces are added to push a decision in the desired direction, as in a majority decision.

Health educators had appreciated the importance of participation in education long before such studies appeared, though they had not stressed the decision element. Earlier literature in general education repeatedly emphasized the value of participation in learning; and although this often implied physical activity, practice, or exercise, the deeper, psychologic meaning had been caught by educators. Teacher-student planning was frequent in schools by the mid-1930's, and participation through discussion was common. Community health educators, when they appeared, adopted the participative approach as evidenced by our early use of community organization. Later, Lewin's studies brought into clear perspective the importance of discussion-decision and the group setting.

In our informal way of organizing principles to guide practice, it appears that we had probed into learning theory from the start and later eagerly accepted Lewin's findings. Group discussion-decision became an important method in health education. At times, however, we overlooked the decision element, which Lewin saw as crucial, and focused upon discussion. We often interpreted decision as being confined to group decision about group goals. In our action-orientation, many of us did not analyze the research and theory upon which we were basing our professional practice.

Had we studied Lewin's work and that of others critically and deeply, we probably would have accepted the broad general thinking about group-discussion-decision, but in a more discriminating way. For example, we might have realized that the varying acceptance rates for different foods required consideration; that follow-up may have been an important variable; that both discussion and group-decision were involved and needed analysis as separate entities; that unanimity and public commitment required study. Moreover, we might have become alert to our loose use of the term "group decision."

Bennett analyzed Lewin's work in designing an investigation wherein she studied the separate effects on action of group discussion, individual decision, public commitment, and the degree of consensus.[34] Her well designed research revealed practically no difference in the effect on action of discussion and lecture. She found that more action tended to result among those making a decision to act than among those making a negative or no decision; the greatest effect on action was among persons making a *private, anonymous decision* to act. *Decision*—though not publicly stated—thus seems important, but the proportion of positive decisions differed little in discussion, lecture and control groups, so discussion seems not to lead to a greater proportion of positive decisions. Bennett also found more action resulting in groups with *high (actual or perceived) consensus* than in groups with low consensus. The combination of a positive decision plus high group consensus-to-act was associated with the greatest effect upon action.

Bennett does not feel that her work negates the usefulness of group discussion and *public* commitment, but she did not find these elements to be essential. Her findings underline the importance of decision, but not the publicly stated, unanimous decision combined with discussion which Lewin found effective.[35] The group setting is important in Bennett's findings because it affords the setting for the preceived or real consensus which, presumably, relates to a group standard.

Festinger discusses Lewin's and Bennett's work in applying his theory of cognitive dissonance to decision and action. He holds that dissonance or "non-fitting relations among cognitions" is a motivating factor in its own right.[36] In his definition of cognitions, he includes knowledge, opinion, or belief about self, one's behavior or environment, and also values and attitudes.[37] Cognitive elements may be dissonant for many reasons such as inconsistence, contradiction, or conflict owing to culutral values. Knowledge that a family does not like glandular meats will be dissonant with a decision to serve such meats, for example.[38] Or knowledge that everyone should drink milk will be dissonant for people who have learned culturally that only pregnant women should drink milk. Since dissonance creates pressure, it motivates people to strive for consonance.

Festinger theorizes that decision results in dissonance because the

decider's cognitions reflect the undesirable aspects of the choice made and the desirable aspects of the rejected alternatives.[39] The individual reduces dissonance by changing or revoking his decision, or by stabilizing his decision through reducing the attractiveness of possibilities not selected, or increasing the attractiveness of the choice made. Studies by Brehm and others are cited by Festinger in support of his theory.[40]

Festinger attributes the effects observed by Lewin and Bennett to successful reduction of dissonance after decision. Both *decision* and *reduced post-decisional dissonance* are important, and whether decisions are public or private, he suggests, is not the essential aspect. Bennett's study is especially noted by Festinger for the finding that positive attitudes about volunteering tended to increase more after the decision was made among respondents who were "deciders" than among the "no decision" group. One could ask whether perceived high group consensus is also related to an effort to reduce post-decision dissonance.

Lewin's studies suggest that discussion-group-decision and unanimous public commitment in a small face-to-face group probably affect action. Bennett suggests that decision and the degree of group consensus (perceived or real) affects action, not discussion or public commitment. Festinger theorizes that reduction of post-decisional dissonance is the important element in the action effects observed after decision-taking.

What does all this indicate for health education practice? Are the differing research results due in some measure to the content of the decisions involved—adoption of food practices, volunteering for psychological experiments, choice of market products? Are different approaches required to reach decisions when different content is involved? For example, does volunteering in psychological experiments not require the clarification which discussion affords and which the adoption of new food practices may require? Is a group value or standard, such as is developed by decision in a group, more important for some actions than for others? Is a shared group value, publicly stated, important in reducing post-decision dissonance, as is also seeking information supporting the decision made, or assuming or imagining group consensus? If the post-decision period is important for reducing dissonance, what might various follow-up techniques accomplish? What communication is needed? What might continuing group supports do?

Only a small part of the research in group decision-making has been reviewed here. That considered indicates the positive effect on action of decision-taking and a felt group standard. But, to look again at the approach we suggested earlier, the research does not make truly clear just how to reach the decision point—the decision process; what to do to keep a decision maintained; what changes to allow for in process and maintenance techniques for decisions with different types of content; the role of the educator; the effect of environmental forces, and so on.

Earlier we suggested that as health educators we had applied Lewin's findings in practice widely and uncritically. Perhaps, after even this cursory analysis, we can realize that Lewin's results are merely suggestive and recognize, for example, that the decision process may differ for different decisions, and all may not require discussion, and that the period after a decision is taken may need more attention educationally than we have given it. Careful analysis of research is essential to well planned practice so that we can differentiate between fact and suggestion and identify areas for additional research to which our profession might contribute.

Now we have considered some theory relating to decision-making, we have reviewed a bit of the research, and we have attempted to identify what is ready for utilization in practice and what requires further study and field testing. Our considerations have been merely illustrative and not of the detailed type or of the scope which the actual theory-building process would require in public health education.

(h) *Community Diffusion of Decision-Making is Studied*

Another body of research on decision-making is that concerned with the adoption of farm practices.[41] From this has developed a middle-level theory of practice adoption, suggesting phases in individual decision-making and stages in the community diffusion of decision-making. By considering this body of research in the light of the categories we established earlier, the process of decision-making, microcosmic and macrocosmic, is somewhat illuminated. Some light is thrown also on the socio-psychological characteristics of decision-makers, on the role of the agent of change and of education, and on the impact of other environmental forces such as the communication channels, family, etc., and to some extent, on differences observed in the content of various types of farm decision. Little is revealed about the factors important to the maintenance of a decision.

If we focus upon our *process* category and the *community diffusion process*—the flow of decisions from person to person—we find that a certain amount of theory and a model of diffusion has emerged from this research on farm practice adoptions.[42] Community decision-making is seen as a multi-step flow process proceeding from "innovators" to "community adoption leaders" to "local adoption leaders" to the majority who are identified as "later adopters." A wave-like, sequential process is thus revealed in which the use of mass media and technical publications has greater impact on earlier adopters, and personal contact with friends and neighbors has greater impact on the later adopters, who constitute the majority.

Also studying the communication process, but in voting and not directing attention to community diffusion of decisions, Lazarsfeld and others hypothesized a two-step flow process from mass media to "opinion

leaders," who then reach those with whom they usually associate.[43] Several studies have subsequently examined and tested this hypothesis.[44] There has evolved from this the suggestion that there are not generalized "opinion leaders"; that influence in decision-making flows from leaders to those much like them in the same family, friendship, or work group; that leaders have more outside contacts directly or through media but, even so, are more influenced by other people than by the outside contacts; that personal influence in decision-making derives from communication together with group pressure to conform and social support. While Katz and Lazarsfeld study the two-step flow of decision-making, Coleman and others suggest a multi-step flow which, however, is not quite like the process revealed in the studies of agricultural practices.[45]

A detailed analysis of these and several other studies on diffusion would clarify our understanding of community decision-making, identify practice principles, and needed research. We would approach such an analysis with a theoretical background and focus, as discussed earlier. We would view the research in this area from the standpoint of the diffusion theory which has evolved from it or from the standpoint of selected concepts or constructs such as communication or interaction.

SUMMARY

This discussion has taken the viewpoint that the professional field of public health education must organize the many-faceted, multiple-rooted body of knowledge upon which its practice is based and identify areas in which present-day knowledge is inadequate, and in which, for the time being, practice must be based upon intuition and logical deduction based on experience. We have stated that the theoretical base of our profession must be augmented and modified by continuing, careful analysis of documented practice and from collaborative action research. It has been our point of view that the organization of our knowledge base will aid in defining the specific activities of public health educators, because the phenomena with which we deal—education, behavioral change in health, and community—will be illuminated and the principles upon which practice can be based will be brought into clearer focus.

We have attempted to illustrate, quite superficially, how theory can be brought together for a profession. Following Hearn somewhat, we suggested identifying our comprehensive general purpose, defining the specific but broad phenomena with which we deal professionally, selecting unifying constructs or concepts, and analytically studying theory and research from a selected theoretical frame of reference. We suggested a questioning, systematic approach which would detect and delineate regularities in what is known and identify what is not yet established in fact.

We then suggested studying all this material in relation to professional

practice. What is the meaning for public health education? What is ready to be tried out, applied? What additional research is needed, especially in health work?

I do not suggest that practicing health educators are primarily researchers, but I am suggesting that leadership in theory building for our profession must be provided by us, that we shall require collaboration with others to adequately accomplish this task, and that we may add to theory if we are thoughtful practitioners. I am saying that as a profession we must be more scientific in our practice and know better the basis of that practice. Since individuals and personalities are involved in that practice, and since we encounter varied situations, each requiring an ingenious approach, art and science are both involved. Even though our practice involves an art, we would hope that the organization of our theoretical base would enable us to apply existing scientific understanding of community, behavioral change in health, and education toward the achievement and maintenance of community health.

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